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(72) Inventor(s) Rhode Yaker	(58) Field of Search UK CL (Edition R ) G4A AUXX INT CL <sup>7</sup> G06F 17/60 ONLINE WPI EPDOC PAJ SELECT INTERNET SITES
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(54) Abstract Title  
Specifiable delete times for email messages

(57) An electronic mail (email) system allows a user to specify a delete time for automatically deleting an email message. Depending on the implementation, the user may be the sender of the message, the recipient, or the system administrator. The delete time may be specified as a duration of time following receipt of the message or as a specified date and time. In either case, when the specified delete time expires, the computer that received and stored the message to memory automatically deletes the message. In this way, control can be exercised to prevent the indefinite retention of email messages that may contain sensitive or other confidential information.

FIG. 2

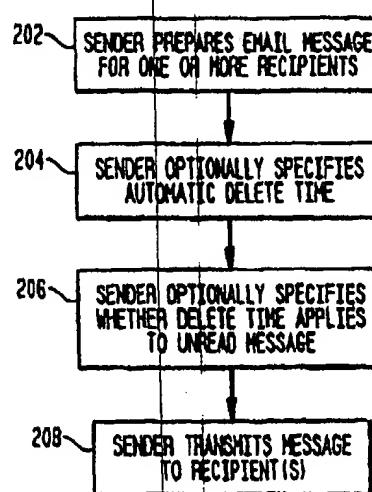
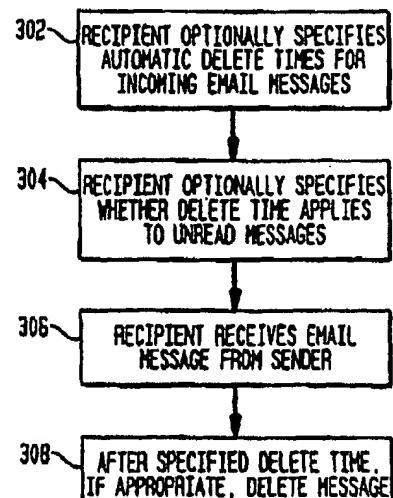


FIG. 3



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FIG. 1

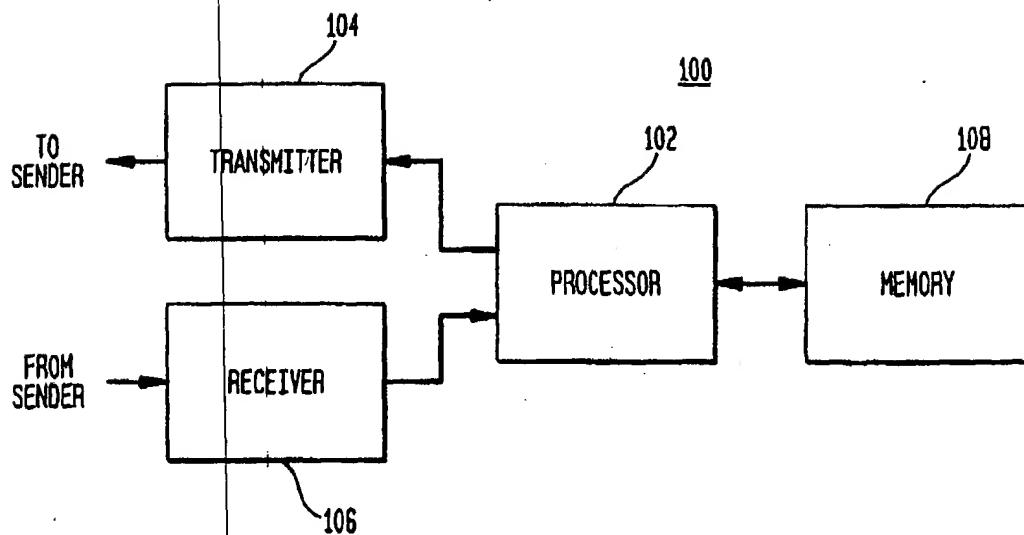


FIG. 2

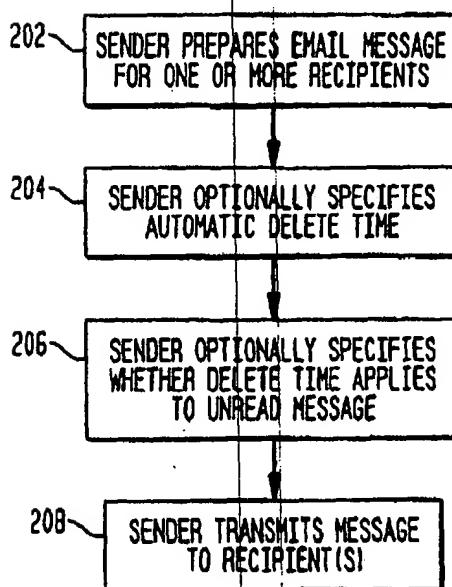
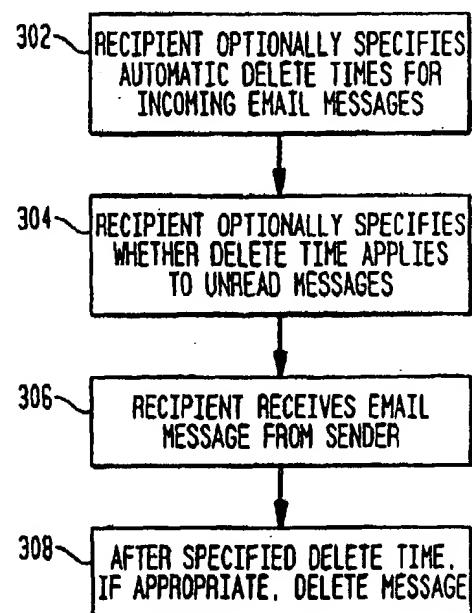


FIG. 3



## SPECIFIABLE DELETE TIMES FOR EMAIL MESSAGES

Field of the Invention

The present invention relates to computer networks that support the transmission of electronic mail (email) messages between nodes of the network.

5 Cross-Reference to Related Applications

This is a continuation-in-part of co-pending application serial number 08/900,793, filed on 7/25/97 as attorney docket no. Yaker 7, the teachings of which are incorporated herein by reference.

Description of the Related Art

10 Typical computer networks allow a user (i.e., an email sender) to send an email message to one or more other users (i.e., email recipients), who can then each decide independently if and when to read his or her copy of the email message. After an email message is read by a recipient, the recipient typically has the option of deleting the message or saving the message for future use. In some email systems, although a message has been deleted, it can still be recovered from an 15 electronic "trash bin" containing such deleted messages. Only when the user explicitly empties the trash will email messages become irretrievable by the user. Some systems allow users to select an option whereby the trash is emptied whenever the user logs out of the email system, but this option is typically disabled by default.

20 One of the drawbacks to conventional email systems is that, unless the recipient explicitly deletes a message and then, if necessary, explicitly empties the trash, the message will be retained indefinitely in the memory of his or her computer. This can be problematic when email messages contains sensitive or confidential material.

Summary Of The Invention

25 The present invention is directed to an email system that allows a user to instruct the system to automatically delete an email message after a specified time or duration. Depending on the options provided in a particular implementation of such an email system, the user may be the sender of an email message, the recipient, or the system administrator. Again, depending on the implementation, this automatic message deletion may apply only to messages that have been read

by the recipient or it may apply to any message whether or not the message has been read by the recipient.

In one embodiment of the invention, the present invention is a method and apparatus for processing email messages by a computer. An email message is received and stored into memory, wherein a user-specified delete time is or has been assigned for the message. The message is then automatically deleted from the memory after expiration of the delete time.

#### Brief Description Of The Drawings

Fig. 1 shows a block diagram of an email messaging system, according to one embodiment of the present invention;

10 Fig. 2 shows a flow diagram of the processing implemented by the system of Fig. 1 related to the preparation and sending of an email message; and

Fig. 3 shows a flow diagram of the processing implemented by the system of Fig. 1 related to the receipt and handling of an email message.

#### Detailed Description

15 The present invention addresses a security problem related to email systems. In particular, an email system of the present invention enables a user to specify a time for deleting an email message. The user may be the sender of the message, a recipient of the message, or the system administrator for the computer network. The delete time may be specified in terms of a particular duration of time, e.g., a number of hours, days, or weeks, after transmission or receipt of the message. Alternatively, the delete time may be specified in terms of a time and date by hour, day, month, and year. In one embodiment, the sender of the email message has the ability to specify the delete time when preparing the message. Alternatively or in addition, each recipient can specify a default delete time for each email message he or she receives or a specific delete time for each different email message as the recipient reads that message. The system administrator may also be able to specify default delete times, including different delete times for different network users. Typically, default delete times, whether set by recipients or system administrators, would be in terms of a particular duration of time rather than a time and date.

Fig. 1 shows a block diagram of a node 100 of a computer network supporting the preparation and sending of outgoing email messages to one or more other network users as well as

the receipt and handling of incoming email messages from other network users, according to one embodiment of the present invention. The computer network can be any suitable type of computer network, such as a local area network or intranet or a wide area network or internet. Similar, node 100 can be any suitable type of computer such as a desktop personal computer or a workstation.

5 The basic block diagram of Fig. 1 shows the general functionality supported by a node of an email system.

In particular, transmitter 104 of Fig. 1 transmits outgoing email messages from node 100, receiver 106 receives incoming email messages, and memory 108 stores incoming email messages. Processor 102 coordinates the activities of the other components of node 100, including the 10 preparation and transmission of outgoing email messages as well as the receipt, storage, reading, and deleting of incoming email messages. Depending on the implementation, an email system can be designed to provide some or all of the following options to network users:

- o A sender of an email message can select a delete time (e.g., via either a specified date and time or a specified duration) for each outgoing message.
- 15 o The sender can set a default delete time in terms of a specified duration for each of his or her email messages. In addition, the sender can vary the delete time from message to message.
- o The sender can vary the delete time from recipient to recipient for a single email message.
- o The sender has the option of specifying that the message be deleted only after the message 20 has been read by the recipient or whether or not the message has been read.
- o The sender has the option of specifying that the message be deleted as soon as it is read by a recipient, whether or not the specified delete time has expired.
- o The recipient or system administrator can set a default delete time (e.g., typically a specified duration) for all incoming messages.
- 25 o The recipient has the option of specifying that the message be deleted either (a) only after the message has been read by the recipient or (b) whether or not the message has been read.
- o The recipient can set a specific delete time as each incoming message is read by the recipient.

- o The recipient can override a delete time specified by the sender.

In any event, assuming that the relevant conditions are met, after the expiration of a specified delete time, processor 102 of Fig. 1 will automatically delete the corresponding email message, where "delete" may mean "make the message unavailable to the recipient," in which case, it is equivalent

5 to sending an email message to a trash.bin and then emptying the trash for conventional email systems. Depending on the implementation, the term "delete" as understood for the present invention may also imply an operation that completely erases the corresponding region of memory 108, so that even system administrators using special memory reconstruction routines cannot recover the message.

10 Fig. 2 shows a flow diagram of the processing implemented by node 100 of Fig. 1 when the user is a sender of an outgoing email message, according to one embodiment of the present invention. In that case, the user prepares an email message for one or more recipients (step 202 of Fig. 2), optionally specifying an automatic delete time for the message (step 204) and whether or not that automatic delete time applies to unread messages (step 206). The sender then transmits the 15 email message to the recipient(s) (step 208), where the automatic deletion instructions are embedded in the email message according to some appropriate specified protocol.

Fig. 3 shows a flow diagram of the processing implemented by node 100 of Fig. 1 when the user is a recipient of an incoming email message, according to one embodiment of the present invention. Prior to receiving an email message, the recipient optionally specifies a default 20 automatic delete time for his or her incoming email messages (step 302 of Fig. 3) and whether or not that automatic delete time applies to unread messages (step 304). After the recipient receives an incoming email message (step 306) and after expiration of the specified delete time, assuming all other conditions are met (e.g., a flag has been set indicating that the message has been read if only read messages are to be deleted), the processor automatically deletes the message (step 308).

25 Each incoming email message, with its embedded delete time information, is assigned a receipt time by the processor indicating the time of receipt of the email message by the recipient. When the delete time is specified as a particular date and time, the processor compares the delete time with the local time kept by the machine to determine when to delete the message. When the delete time is specified as a particular duration (e.g., in number of days or hours), the processor 30 compares the local time to the sum of the message receipt time and the specified delete time to determine when to delete the message.

In addition to applying at the individual computers where email messages are received, the present invention can also be applied within computer servers that are responsible for storing and distributing email messages to individual recipients.

5 It will be further understood that various changes in the details, materials, and arrangements of the parts which have been described and illustrated in order to explain the nature of this invention may be made by those skilled in the art without departing from the principle and scope of the invention as expressed in the following claims.

Claims

1. A method for processing electronic mail (email) messages by a computer, comprising the steps of:
  - (a) receiving an email message and storing the message into memory;
  - 5 (b) assigning a user-specified delete time for the message; and
  - (c) automatically deleting the message from the memory after expiration of the delete time.
2. The invention of claim 1, wherein the delete time is assigned when the message is prepared by a sender.
- 10 3. The invention of claim 2, wherein the delete time is explicitly selected by the sender for the message.
4. The invention of claim 2, wherein the delete time is a default delete time that is automatically assigned to the message when the sender prepares the message.
- 15 5. The invention of claim 1, wherein the delete time is assigned after the message is received.
6. The invention of claim 5, wherein the delete time is explicitly selected by a recipient when the message is read.
- 15 7. The invention of claim 5, wherein the delete time is a default delete time that is automatically assigned to the message when the message is received.
8. The invention of claim 1, wherein, after the expiration of the delete time, the message is deleted only after it has been read.
- 20 9. The invention of claim 1, wherein, after the expiration of the delete time, the message is deleted whether or not it has been read.
10. The invention of claim 1, wherein each email message can have a different delete time.
11. An apparatus method for processing email messages, comprising:
  - (a) means for receiving an email message and storing the message into memory;

(b) means for assigning a user-specified delete time for the message; and  
(c) means for automatically deleting the message from the memory after expiration of the delete time.

12. An apparatus for processing email messages, comprising:

5 (a) a memory device adapted to store an email message; and  
(b) a processor adapted to automatically delete the stored message from the memory device after expiration of a user-assigned delete time for the message.

13. The invention of claim 12, wherein the delete time is assigned when the message is prepared by a sender.

10 14. The invention of claim 13, wherein the delete time is explicitly selected by the sender for the message.

15 15. The invention of claim 13, wherein the delete time is a default delete time that is automatically assigned to the message when the sender prepares the message.

16. The invention of claim 12, wherein the delete time is assigned after the message is received  
15 by the apparatus.

17. The invention of claim 16, wherein the delete time is explicitly selected by a recipient when the message is read.

18. The invention of claim 16, wherein the delete time is a default delete time that is automatically assigned to the message by the processor when the message is received.

20 19. The invention of claim 12, wherein, after the expiration of the delete time, the message is deleted by the processor only after it has been read.

20. The invention of claim 12, wherein, after the expiration of the delete time, the message is deleted whether or not it has been read.

21. The invention of claim 12, wherein each email message can have a different delete time



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Examiner: Russell Maurice  
Date of search: 29 September 2000

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK CI (Ed.R): G4A (AUXX)

Int CI (Ed.7): G06F (17/60)

Other: ONLINE WPI EPODOC PAJ SELECT INTERNET SITES

**Documents considered to be relevant:**

Category	Identity of document and relevant passage		Relevant to claims
X, E	WO 00/17768 A1	Ogilvie (see whole document, see abstract)	1-3, 9-14, 20 & 21 at least
X	WO 98/58321 A1	Purde (see whole document, esp. Summary of invention)	1-3, 10-14, 19 & 21 at least
X	US 5786817 A	Sakano (see whole document, see abstract)	1,5, 9-12, 17 & 21 at least
X	GroupWise 4.1 reference manual pages 1, 2, 50,51 & 93-95 copyright 1994-95, WordPerfect, Novell Applications Group		1-3, 5 10-14, 16 18, 19 & 21 at least

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